

REMARKS

In view of the following remarks, reconsideration of the rejections contained in the Office Action of December 8, 2008 is respectfully requested.

In the outstanding Office Action, the Examiner again rejected all of the pending claims in view of the prior art, including the previously-applied Toshio reference and Ishii reference. However, the Examiner's rejections appears to be based on an incorrect understanding of the Toshio reference, as will be explained in more detail below. For the following reasons, it is respectfully submitted that claims 13-30 are clearly patentable over the prior art of record.

As previously explained in the remarks filed August 20, 2008 both independent claim 13 and independent claim 24 recite that a vibrator 1 and a boring tool 2 (as generally illustrated in Figures 2A-2F of the present application) are *discrete members unattached to each other such that the boring tool 2 jumps and separates from the vibrator 1* when the vibrator 1 applies ultrasonic vibrations to the boring tool 2 (see paragraph [0009] on page 3 of the original specification; paragraph [0018] on page 7 of the original specification; and paragraph [0026] on page 9 of the original specification). Consequently, high accuracy boring can be achieved by the boring device without damage to the object to be bored or the boring tool itself (see paragraph [0028] on page 10 of the original specification).

In the outstanding Office Action, the Examiner responded to the Applicants' previous remarks regarding the distinctions between the present invention and the Toshio reference. However, several of the Examiner's comments reflect an incomplete or inaccurate understanding of the disclosure in the Toshio reference, which is apparently providing the basis for the Examiner's rejections. In this regard, the Applicants note that the Toshio reference was initially cited and applied by the Examiner in the Office Action of April 29, 2008, and was listed on the Form-892 attached to that Office Action. Although a brief English-language abstract was attached to the reference, there was no translation of the reference. Thus, the Applicants provide the following comments to help clarify the Examiner's understanding of the Japanese-language Toshio reference.

Firstly, at the top of page 3 of the Office Action, the Examiner asserts that the punch “a” of the Toshio reference can move without the vibrator “f”, as illustrated in Figures 3a-3c of the Toshio reference. However, Figures 3a-3c of the Toshio reference illustrate *prior art*, and these Figures are provided for comparison with the inventive devices shown in Figures 1a and 1b. The prior art device illustrated in Figures 3a -3c is not the invention of the Toshio reference and does not include a vibrator of equivalent component thereof. Thus, to the extent that the Examiner taking the position that Figures 3a-3c illustrate an arrangement including a vibrator and a punch (boring tool), and show that the punch “a” can move without the vibrator as recited in independent claims 13 and 24, this position is obviously incorrect.

Furthermore, the Applicants provide the following translation of the portion of the Toshio reference located on page 149 lines 4-11 of the left column:

“In operation of the device illustrated in Fig 1b, the vibrator ‘f’ provides vibration to the punch ‘a’ in a direction indicated with an arrow in Figure 1b to thereby impart a force caused by the vibration acceleration to the punch ‘a.’ *A static load caused by the weight ‘g’ is simultaneously applied to the punch ‘a.’* Thus, a workpiece ‘d’ is holed. Specifically, a combination of an impact force caused by the punch ‘a,’ the force caused by the vibration acceleration, and the static load caused by the weight ‘g’ is applied at a time to the workpiece ‘d.’” (emphasis added)

In view of the above partial English translation of the Toshio reference, it is clear that the Toshio reference does not teach or suggest a vibrator and a boring tool being discrete members unattached to each other such that the boring tool *jumps and separates* from the vibrator when the vibrator applies vibrations to the boring tool. In particular, the weight “g” is provided to intentionally prevent any inadvertent separation of the vibrator “f” from the punch “a” during operation. In other words, even after the vibrator “f” is fastened to the punch “a,” it is possible

that there might be some separation between these two components during operation. However, application of the weight “g” so as to continuously press the vibrator “f” against the punch “a” will prevent even inadvertent separation and jumping between the vibrator “f” and the punch “a.” Therefore, the objective (as made clear in the partial English translation above) of imparting the vibration from the vibrator “f” to the punch “a” can be achieved.

It is also clear from the above partial English translation of the Toshio reference that the weight “g,” the vibrator “f,” and the punch “a” are intended to be attached to each other. However, in item 17 on page 7 of the outstanding Office Action, the Examiner asserted that Figure 1b of the Toshio reference teaches that the punch, the vibrator, and the press are three distinct objects, and “there are no connections or fasteners providing any of the members being attached to another member.” Figure 1a and Figure 1b of the Toshio reference are both clearly *schematic diagrams* simply illustrating a *general arrangement* of the components of the Toshio reference, rather than any details (such as fasteners) of the device. Fasteners and connectors are very seldom shown in general schematic diagrams, and so the lack of such fasteners or connectors in Figures 1a and 1b of the Toshio reference is clearly not indicative of the absence of such fasteners in the invention of the Toshio reference. To the contrary, in view of the partial English translation and the discussion provided above, it is submitted that one of ordinary skill in the art would certainly expect that at least the vibrator “f” and the punch “a” of the Toshio reference are fastened so as to prevent separation.

In view of the above, it is clear that the Toshio reference fails to teach or even suggest a vibrator and a boring tool being discrete members unattached to each other such that the boring tool jumps and separates from the vibrator when the vibrator applies vibrations to the boring tool. Furthermore, the Ishii reference, the Henderson reference, and the Toshio reference also do not teach or even suggest such a feature. Therefore, the combination of references applied by the Examiner provides no apparent reason for one of ordinary skill in the art to obtain the boring device of independent claim 15 or the boring method of independent claim 24. Accordingly, it is respectfully submitted that independent claims 13 and 24 and the claims that depend therefrom are clearly patentable over the prior art of record.

In addition to the distinguishing features recited in independent claims 13 and 24, the dependent claims recite additional features which further distinguish the present invention from the prior art. In particular, dependent claims 19 and 30 further recite that the boring tool has a *spherical surface* for contacting the vibrator. As explained on page 7, lines 19-22 of the original specification, this feature allows the boring tool (e.g., a punch) to strike downward in a straight direction in view of the fact that the vibrator and the boring tool are discrete members such that the boring tool jumps and separates from the vibrator when vibrations are applied to the boring tool. In other words, the additional features recited in dependent claims 19 and 30 are particularly important for a boring device in which the vibrator and the boring tool are discrete members which separate from each other.

In the Office Action, the Examiner dismissed the features recited in dependent claims 19 and 30 as being merely “an obvious matter of design choice to make the different portions of the punch of whatever form or shape was desired or expedient.” For the reasons discussed above, it is submitted that the particular shape recited in dependent claims 19 and 30 is not an obvious matter of design choice simply related to whatever shape or form is most expedient. Thus, because these features are also clearly not taught or even suggested in the prior art, it is submitted that the subject matter recited in dependent claims 19 and 30 further distinguishes the present invention from the prior art.

In view of the above remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,

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